

## Rethinking the Value of Choice: A Cultural Perspective on Intrinsic Motivation

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Conventional wisdom and decades of psychological research have linked the provision of choice to increased levels of intrinsic motivation, greater persistence, better performance, and higher satisfaction. This investigation examined the relevance and limitations of these findings for cultures in which individuals possess more interdependent models of the self. In 2 studies, personal choice generally enhanced motivation more for American independent selves than for Asian interdependent selves. In addition, Anglo American children showed less intrinsic motivation when choices were made for them by others than when they made their own choices, whether the others were authority figures or peers. In contrast, Asian American children proved most intrinsically motivated when choices were made for them by trusted authority figures or peers. Theoretical and practical implications of these findings are discussed.

Freedom is the right to choose: the right to create for oneself the alternatives of choice. Without the possibility of choice, and the exercise of choice, a man is not a man but a member, an instrument, a thing.

—Thomas Jefferson

Americans cherish choice. "Liberty," after all, is enshrined, subordinate only to life itself in our Declaration of Independence. Even today, the provision and the rhetorical appeal of choice permeates American life—from the plethora of options available in our grocery stores, where there is often an entire aisle devoted solely to potato chips or to soft drinks, to the use of the label *pro-choice* by abortion advocates as a persuasive device in current political debate.

Inherent in such practices is the assumption that choice is both desirable and powerful. Psychological theory and research have similarly entailed the presumption that choice is invariably beneficial. Repeatedly, across many domains of inquiry, American

psychologists have contended that providing choice will increase an individual's sense of personal control (e.g., Rotter, 1966; Taylor, 1989; Taylor & Brown, 1988) and feelings of intrinsic motivation (e.g., deCharms, 1968; Deci, 1981; Deci & Ryan, 1985). Such personal control and intrinsic motivation, in turn, have been associated with numerous physical and psychological benefits. Indeed, even seemingly trivial (e.g., Langer & Rodin, 1976) or wholly illusory (e.g., Langer, 1975) choices have been shown to have powerful motivating consequences (e.g., Brickman, 1987; Dember, Galinsky, & Warm, 1992).

Theorists studying intrinsic motivation have provided the clearest demonstration of the link between the provision of choice and human motivation. By far the most prominent current analysis of this concept—that of Deci and his colleagues (e.g., Deci, 1981; Deci & Ryan, 1985), which draws in part on earlier work by deCharms (1968)—virtually equates intrinsic motivation with individual choice and personal self-determination. In this analysis, people are viewed as actors seeking to exercise and validate a sense of control over their external environments. As a result, they are theorized to enjoy, to prefer, and to persist at activities that provide them with the opportunity to make choices, to control their own outcomes, and to determine their own fate (Condry, 1977; Deci, 1975, 1981; Lepper & Malone, 1987; Malone & Lepper, 1987; Nuttin, 1973; Zuckerman, Porac, Lathin, Smith, & Deci, 1978). Conversely, the absence of choice and control has been hypothesized and shown to produce a variety of detrimental effects on intrinsic motivation, life satisfaction, and health status (e.g., Deci, Spiegel, Ryan, Koestner, & Kaufman, 1982; Schulz & Hanusa, 1978; Seligman, 1975).

What—as Jefferson might have said—could be more self-evident? Clearly, different individuals will have different preferences, and certainly the more choices available, the more these

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individuals will be able to find and select alternatives that best match their personal preferences. In addition, the mere exercise of choice itself may have psychological benefits. People offered a choice may feel a sense of autonomy, control, or empowerment.

But are these principles truly as self-evident and as universal as they might first appear to investigators raised and living in North America? So ingrained is the American assumption that people will find choice intrinsically motivating that psychologists have rarely paused to examine the more general applicability of these findings.

As an initial examination of the manner in which cultural ideals might affect attitudes toward choice, we conducted a series of small ethnographic studies with Japanese and American students residing and taking classes in Kyoto, Japan. These students were asked to catalog the choices they made during one normal workday and to rate, on a 5-point scale, how important each choice was to them. Even though the American students had typically only resided in Japan for a period of a month—and presumably were not aware of all the choices available to them—they nevertheless reported themselves as having nearly 50% more choices than did their Japanese counterparts. In addition, the American students rated their choices as being significantly more important to them than did the Japanese students. Conversely, Japanese and American students were asked to list occasions on which they would wish not to have a choice. Nearly 30% of the American students, but none of the Japanese students, said they wished to have choices all of the time, and more than half of the American students said that they could not imagine a circumstance in which they would prefer not to have a choice.

A recent influential cultural analysis, presented by Markus and Kitayama (1991a, 1991b), would seem to shed some light on the mechanisms that might underlie these differences. Their *self-systems theory* argues that whereas personal agency is an essential element of the self-constructs of American individualists, it may be much less relevant to the self-constructs of members of more collectivistic cultures characteristic of Asia and elsewhere. Markus and Kitayama's analysis suggests that the link between the provision of choice and intrinsic motivation may not be universally applicable.

Indeed, an extrapolation of their analysis might suggest that the demonstrable benefits of choice might be of greatest relevance for North Americans and Western Europeans. Americans, Markus and Kitayama (1991a, 1991b) suggest, possess a model of the self as fundamentally independent. Such individuals strive for independence, desire a sense of autonomy, and seek to express their internal attributes in order to establish their uniqueness within their environments. For Americans, therefore, making a choice provides an opportunity to display one's preferences and, consequently, to express one's internal attributes, to assert one's autonomy, and to fulfill the goal of being unique. For Americans, individual choice and personal autonomy may be deeply intertwined with one's sense of self-identity.

The strength of this link between the expression of choice and the concept of self for many Americans can be easily illustrated with a familiar example. John goes out to dinner with friends. As he peruses the menu, he spots a favorite dish that sounds tempting—perhaps grilled prawns. To his dismay, however, he listens as the two companions sitting across from him order this same item. Suddenly, he faces a "dilemma of individuality" and must decide

whether to go ahead and order the same dish, now that others have already done so. Even if he resists the temptation to change his planned order, he may still find himself obliged to offer some prefatory apology or explanation for his decision: "I hate to be such a copycat" or "I was really planning on ordering that dish all along."

Now, consider a different cultural context, one in which the participants possess a more interdependent model of the self. In contrast to American individualists, Markus and Kitayama (1991a, 1991b) theorize that members of more interdependent cultures (i.e., most non-Western, and particularly East Asian, cultures) strive for interconnectedness and belongingness with their social in-groups, seeking to maintain harmony and endeavoring to fulfill the wishes of those groups (DeVos, 1985; Hsu, 1985; Miller, 1988; Shweder & Bourne, 1984; Triandis, 1990, 1995). For such individuals, the exercise of personal choice may have considerably less intrinsic value. Indeed, in some situations the exercise of personal choice might even pose a threat to individuals whose personal preferences could prove to be at variance with those of their reference group. Interdependent selves, therefore, might sometimes actually prefer to submit to choices expressed by others if the situation enables them to fulfill the superordinate cultural goal of belongingness.

Thus, in the more interdependent cultures that comprise most of the non-Western world (Hofstede, 1991; Triandis, 1995), the apparent dilemma facing John, our hypothetical diner, is likely to seem ludicrous. Surely, the discovery of shared preferences should be, if anything, a source of pleasure, an opportunity to display one's identification with the group. In most Eastern countries, sharing a common menu item would be standard procedure when dining out, and it would instead be the assertion of some distinctive individual preference that would require some explanation or apology. If Yuko disliked the shellfish that was being served, her "dilemma of belongingness" would be whether just to pick politely at a dinner she could not eat or to express her distinctiveness and potentially threaten the harmony of the group around the table.

For individuals possessing interdependent selves, one might hypothesize that the effects of having one's choices made by others might depend critically on the specific identity of the choosers. Depending on the degree of closeness between the chooser and the self, a person making choices for another can be perceived either as a benevolent agent or as an arrogant usurper of an individual's right to choose for himself or herself.

To examine the relevance of the provision of choice for the intrinsic motivation of individuals from contrasting cultural backgrounds, we studied the responses of Anglo American versus Asian American children to three basic conditions. In one condition, children were given a personal choice over some typically small or incidental aspect of an activity they were asked to undertake. In a second condition, this same choice was made for them by someone with whom they had no history of a relationship. These two conditions, of course, replicated the basic design of many of the studies that have demonstrated beneficial effects of choice on intrinsic motivation with American or European participants (e.g., Deci & Ryan, 1985; Zuckerman et al., 1978).

The third, more distinctive experimental condition involved an attempt to instantiate in the laboratory a second form of external control, or lack of personal choice, that is hypothesized to have special relevance for students from interdependent societies. Spe-

cifically, someone theoretically considered by the child to be both trustworthy and close in relationship—to be a part of the child's interdependent self—exerted control over the child by making choices for him or her. In this novel third condition in Study 1, children were led to believe that their own mothers had decided which activity they would engage in; in this third condition in Study 2, children were led to believe that their classmates had made these decisions.

Our hypotheses were the following: Anglo American children should show substantially greater intrinsic motivation and other psychological benefits in the personal choice condition, compared with both of the imposed-choice conditions (regardless of who had made the choices for them). Asian American children, in contrast, should show higher subsequent motivation and other psychological benefits in conditions in which significant others (e.g., their mothers or their classmates) have made choices for them than in traditional no-choice conditions, or even than in personal choice conditions.

### Study 1

According to Markus and Kitayama (1991a, 1991b), mothers are theorized to be the closest in relationship to both independent-self and interdependent-self individuals. However, whereas mothers are theorized to be outside the self-system of American independent selves, mothers are considered to be interconnected with the identity of Asian interdependent selves. Hence, it seemed of particular theoretical interest to examine children's responses to contexts in which decisions were made for them by their own mothers.

In Study 1, therefore, Anglo American and Asian American grade-school children were asked to engage in an anagrams task. Approximately one third of these students were allowed to choose which category of anagrams they would like to try (personal choice condition), one third were assigned that same category by an unfamiliar experimenter (experimenter choice condition), and one third were told that the relevant category had been chosen for them by their mothers (mom choice condition). Participants' performance on the anagrams task, as well as their subsequent decisions to voluntarily engage in the anagrams task, served as dependent measures.

### Method

#### Participants

The participants were 52 Asian American and 53 Anglo American children enrolled in two schools in San Francisco, California. Both schools were in districts with substantial Asian American populations. The ethnic distribution of the student populations within these two schools consisted of roughly 55% Anglo American children, 40% Asian American children, and 5% children from other ethnic groups. The Asian American sample included only children who spoke their respective Asian languages of Japanese or Chinese at home with their parents, to increase the likelihood that these Asian American children were not already totally assimilated into American culture.

Participants were second- ( $n = 27$ ), third- ( $n = 36$ ), and fourth-grade ( $n = 42$ ) students ranging in age from 7 to 9 years. There were 35 participants in the personal choice condition (18 girls and 17 boys), 36 participants in the experimenter choice condition (18 girls and 18 boys), and 34 participants in the mom choice condition (15 girls and 19 boys).

Parental consent was obtained for all children prior to their participation, and the study was conducted on school grounds during school hours.

#### Procedures

Children participated in individual experimental sessions in rooms outfitted with a table and two chairs. On the table were six piles of index cards, with the top card of each pile labeled in bold letters. Each pile included 15 anagrams, ordered from easiest to most difficult, with the labels denoting the category of the pile. The six categories of anagrams were *animals*, *party*, *San Francisco*, *family*, *house*, and *food*. Located above the anagrams were six markers of varying colors neatly arranged in a row. On the sides of the table were other word games, such as crossword puzzles and make-a-word activities. To minimize participants' prior experience with these tasks, we created these activities specifically for this study. The words chosen for the anagram tasks were selected from a variety of schoolbooks. Efforts were made to ensure that the difficulty across the six categories was equivalent, and, indeed, subsequent analyses revealed that the students' performances did not vary according to the category of anagrams selected.

In a small corner at the other end of the room, out of the child's line of vision, was a smaller table with a large pile of books and papers. Seated behind this table was a hunched-over, very busy, and disinterested-looking observer who covertly recorded the activity of each student. Prior to the experiment, experimenters and observers were trained to ensure that there would be no differences between the experimental sites. Subsequent analyses revealed that the results did not differ by experimental site.

This study involved two dependent variables. The first assessed each participant's performance on the anagrams. The second assessed subsequent intrinsic motivation by examining the amount of time each participant chose to devote to the anagram task during a later free-play period.

A yoked design was used, in which children were grouped by 3s within ethnicity. The first participant in each triad was in the personal choice condition and had the opportunity to choose the category of anagrams he or she wished to work on. The subsequent two participants were randomly assigned to either the mom choice or the experimenter choice conditions, and both were asked to work on the same category of anagrams that the participant in the personal choice condition had selected earlier. This design is similar to the one used by Zuckerman et al. (1978) and allows participants in the personal choice condition a real choice without compromising the comparability of performance measures across conditions.

*Personal choice condition.* Upon entering the experimental room, the child was seated at the table and told "Today we're going to be doing some word puzzles. Each puzzle contains scrambled letters which you have to unscramble to make a word." The experimenter then reviewed two simple examples of anagrams, making sure the child understood the task. The experimenter then pointed to the six piles of anagrams and said, "Here are six piles of word puzzles you can choose from. The categories are *animals*, *party*, *San Francisco*, *family*, *house*, and *food*. Which one would you like to do? It's your choice." If the child asked the experimenter, "Which one should I do?" the experimenter replied, "It's your choice. Choose any one you want." Next, the experimenter pointed to the six markers lying above the piles of anagrams and continued, "From these six markers, you can pick any one marker to use for jotting down your answers. Go ahead and choose the one you would like to use." Again, if any child looked questioningly at the experimenter, the experimenter repeated, "It's your choice, you can choose whichever one you want."

Each child was given 6 min to complete the anagrams. At 5 min and 45 s, the child was encouraged to start finishing up, and at 6 min, the experimenter collected the child's worksheet saying, "Please put your name on it so we can score it." The experimenter then said, "I have to go take care of scoring this. It'll probably take a little while. While I'm gone why don't you go ahead and do whatever you want. You can do some more word puzzles or do one of those crossword puzzles, or whatever. I'll be back in a little while."

The experimenter then removed the child's worksheet and the pile of anagrams that the child had been working on and left the room for a period of 6 min. After the experimenter had left, the observer yawned audibly and said to the child, "I'm really busy right now, so just do whatever you want." The observer returned to a hunched position over the books and papers and set a concealed stopwatch. During this free-play period, the amount of time the child chose to spend doing more anagrams, as opposed to doing other word tasks, was carefully recorded. Afterward, the experimenter returned and took the child back to his or her classroom.

*Experimenter choice condition.* In this second condition, the procedures were identical to those in the personal choice condition, except that it was the experimenter who designated the relevant choice. Thus, after explaining the sample anagrams, the experimenter pointed to the six piles of anagrams and stated,

These are the six types of word puzzles that you can do. After I read the list, I'm going to tell you which one I want you to do. . . . I would like you to do [this puzzle]. . . . Here are six markers, any one of which you can use for jotting down your answers. I would like you to use [this marker].

*Mom choice condition.* In this third condition, the procedure was basically identical to that of the experimenter choice condition; however, in this case, the chooser was alleged to be the child's own mother. To give the participants the illusion that their mothers had indeed chosen the activities for them, we placed a stack of consent forms at the edge of the table in addition to the normal experimental materials. The experimenter, after telling the participant about the six piles of anagrams, glanced down at the consent forms and began flipping through them. While flipping through the consent forms, the experimenter asked the child for his or her name and for his or her mother's name, indicating, "We asked your mom to fill out a form earlier. It says here that your mom wants you to do this category of anagrams."

Similarly, when selecting the marker, the experimenter, glancing once again at the consent form, said, "Your mom also wants you to use this color marker." In actuality, participants in this condition were given the same category of anagrams and color of marker as children in the personal choice condition. At the conclusion of the initial 6-min period, the experimenter said, "Your score will be given to your mom, so please put your name on it."

*Closing procedure.* After the free-play period but before they were returned to their classrooms, all participants were asked their age and what language they spoke at home with their parents, to ensure that the information previously received from the school was accurate. In addition, precautions were taken to ensure that participants did not reveal the content of the experiment to other students in their class. First, the experimenter informed each child,

What we're doing is really important, so please keep it a secret, okay? Don't tell your friends what you did in here; otherwise the experiment won't work. If one of your friends asks you what happened here, you should tell them "It's a secret, I can't tell you." So let's practice what you will say when your friends ask you what you did.

The experimenter then rehearsed with the child his or her responses to such requests for information.

As a final precaution, the experimenter also showed each participant a jar filled with jellybeans and asked the child to guess the number of jellybeans in the jar. After the child had made a guess, the experimenter informed the child of the correct answer. The actual number of jellybeans was such that a correct guess would be highly unlikely. Hence, if a child guessed the exact number of jellybeans in the jar, we assumed that the child had received prior information regarding the experiment. On the basis of this procedure, one participant was eliminated from the analysis, leaving a final participant population of 105.

## Results

Our central interest in Study 1 was to compare the two cultural groups on performance on the anagrams task and on subsequent intrinsic motivation for the anagrams task across the three experimental treatments of personal choice, experimenter choice, and mom choice. Before turning to these central issues, however, we first examined the effects of grade, gender, and school on these two measures.

### Preliminary Analyses

Not surprisingly, preliminary analyses suggested that performance varied with age, with the average performance of second graders ( $M = 4.70$ ,  $SD = 2.22$ ) being significantly lower than that of fourth graders ( $M = 6.71$ ,  $SD = 3.20$ ), and with third graders producing intermediate scores ( $M = 4.75$ ,  $SD = 2.99$ ),  $F(2, 102) = 5.88$ ,  $p < .004$ . Overall, intrinsic motivation levels also varied with grade, decreasing with age, with the average number of seconds spent on the anagrams during the free-play period by fourth graders ( $M = 178$ ,  $SD = 136$ ) and by third graders ( $M = 181$ ,  $SD = 136$ ) being significantly less than the average time spent by second graders ( $M = 273$ ,  $SD = 97$ ). Neither of these main effects of grade, however, interacted significantly with experimental condition. Similarly, there were no significant differences or interactions with condition for either the intrinsic motivation or the performance measures as a function of gender, nor did the findings from the two schools differ. Finally, there were no significant differences between students of Chinese versus Japanese families, suggesting the legitimacy of treating both as a single group in this study.

### Task Performance

Performance was measured by the total number of correctly solved anagrams. The maximum possible correct was 15. An Ethnicity  $\times$  Condition analysis of variance (ANOVA) on this measure yielded significant effects for ethnicity,  $F(1, 99) = 24.33$ ,  $p < .0001$ , and condition,  $F(2, 99) = 21.77$ ,  $p < .0001$ . More important, the interaction of the two variables was highly significant,  $F(2, 99) = 22.68$ ,  $p < .0001$ . Tukey comparisons showed that Anglo American students performed best in the personal choice condition ( $M = 7.39$ ,  $SD = 1.88$ ) and performed significantly lower in both the mom choice ( $M = 2.94$ ,  $SD = 1.84$ ) and the experimenter choice ( $M = 3.06$ ,  $SD = 1.89$ ) conditions, in which performances did not differ from one another. In contrast, for Asian American students performance was highest in the mom choice condition ( $M = 8.78$ ,  $SD = 2.24$ ), significantly lower in the personal choice condition ( $M = 6.47$ ,  $SD = 2.10$ ), and lower still in the experimenter choice condition ( $M = 4.28$ ,  $SD = 2.65$ ). Within conditions, significant differences between Anglo and Asian American students appeared only in the mom choice condition, in which Anglo American students performed significantly worse than Asian American students. These results are presented graphically in Figure 1.

### Intrinsic Motivation

A generally comparable pattern emerged with the intrinsic motivation measure. This dependent variable was the total number of

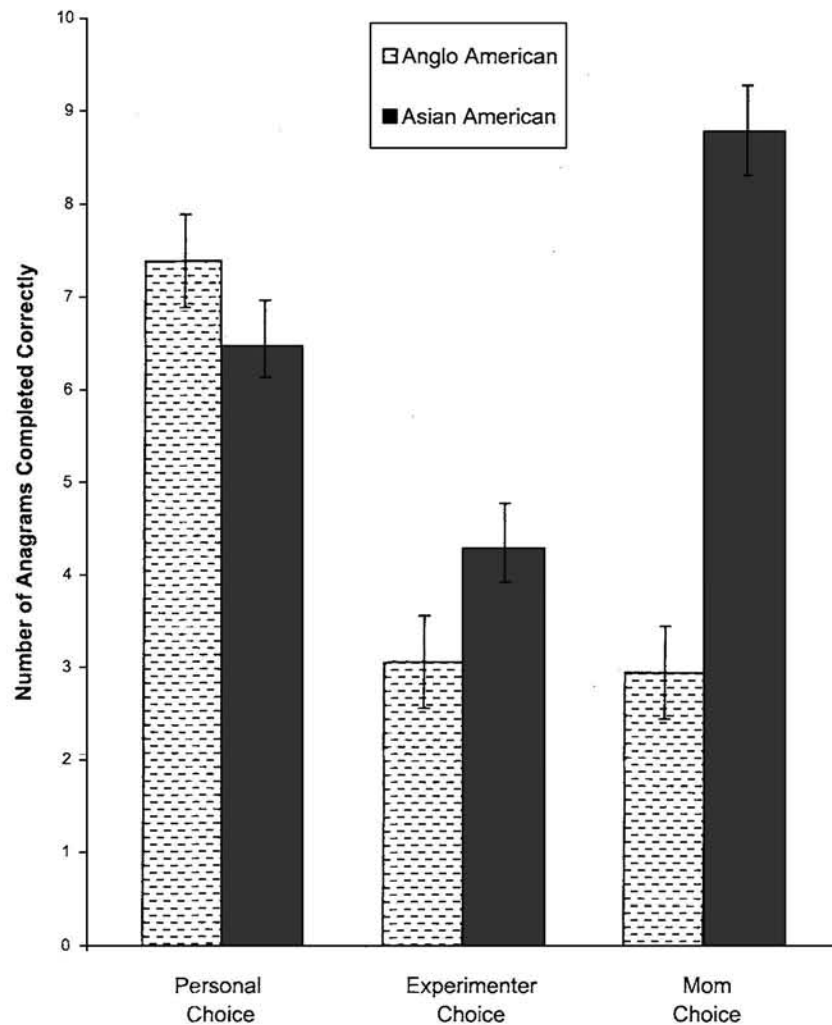


Figure 1. Measure of performance in Study 1. Mean number of anagrams completed correctly by experimental condition, out of 15 possible. Bars represent means, and lines represent standard errors.

seconds, out of a possible total of 360, each child chose to spend on anagrams during the free-play period. In an Ethnicity  $\times$  Condition ANOVA on intrinsic motivation, significant effects of ethnicity,  $F(1, 99) = 10.30, p < .002$ , condition,  $F(2, 99) = 34.97, p < .0001$ , and their interaction,  $F(2, 99) = 34.68, p < .0001$ , were again obtained. Within ethnicity, Tukey comparisons suggested a pattern similar to that observed for performance. During the free-play periods, Anglo American children spent significantly more time on anagrams if they were in the personal choice condition ( $M = 324, SD = 70$ ) than if they were in either the mom choice ( $M = 98, SD = 94$ ) or the experimenter choice ( $M = 103, SD = 99$ ) conditions, in which times, as with performance scores, did not differ from each other. In contrast, the Asian American children spent the most time with the anagrams task in the mom choice condition ( $M = 340, SD = 35$ ), significantly less time in the personal choice condition ( $M = 229, SD = 99$ ), and the least time in the experimenter choice condition ( $M = 116, SD = 98$ ).

As above, within the mom-choice condition Anglo American children scored significantly lower than Asian American children.

Within the personal choice condition, however, a slightly different pattern from that observed with performance emerged. In this condition, Anglo American children spent significantly more time doing anagrams than did the Asian American children, suggesting the possibility that Anglo Americans may be somewhat more intrinsically motivated by the provision of individual choice than Asian Americans are. These results are illustrated in Figure 2.

Given these comparable patterns, one may reasonably ask whether the observed differences in subsequent intrinsic motivation are being driven solely by prior differences in initial task performance. For this purpose, an analysis of covariance was conducted on intrinsic motivation, with initial performance as the covariate. Findings from this analysis suggested that even after taking into account the covariate of performance, significant intrinsic motivation effects remained for ethnicity,  $F(1, 98) = 12.06, p < .001$ , condition,  $F(2, 98) = 29.84, p < .0001$ , and their interaction,  $F(2, 98) = 29.35, p < .0001$ . Tukey comparisons of the adjusted means confirmed all findings previously reported. Even after taking into consideration performance scores, the Anglo

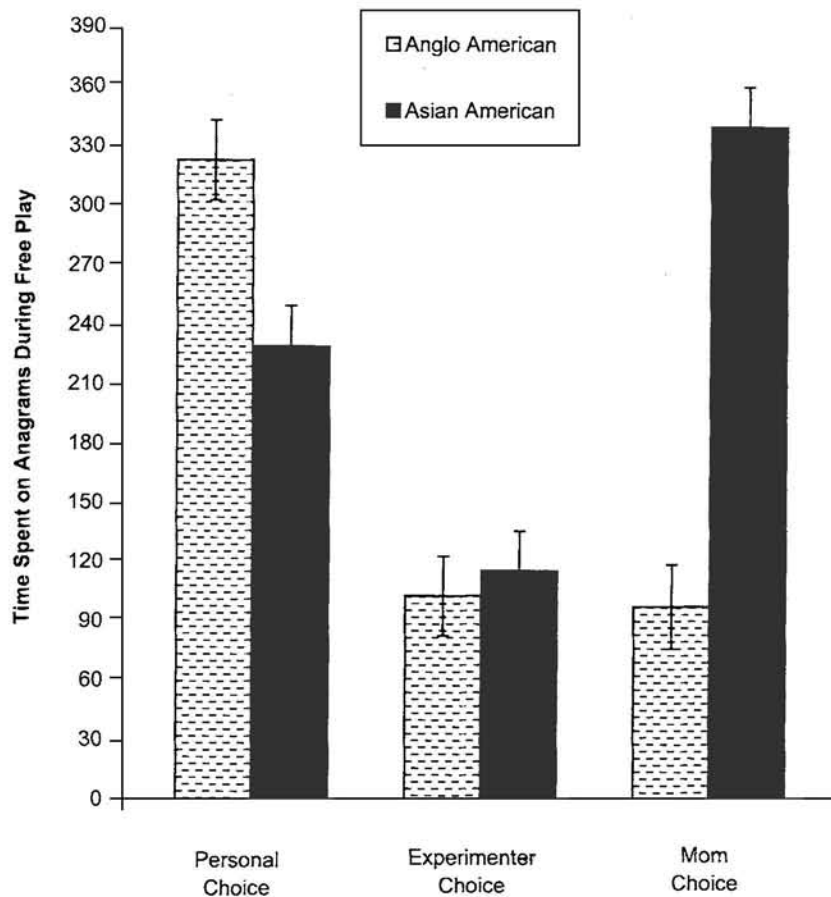


Figure 2. Measure of intrinsic motivation in Study 1. Mean time spent on anagrams during a free-play period by experimental condition. Scores are in seconds, out of a possible total of 360 s. Bars represent means, and lines represent standard errors.

American children were most motivated in the personal choice condition ( $M = 333$ ,  $SD = 91$ ), displaying lower motivation scores in both the experimenter choice ( $M = 90$ ,  $SD = 95$ ) and mom choice ( $M = 84$ ,  $SD = 95$ ) conditions. Conversely, the Asian American children were most motivated in the mom choice condition ( $M = 357$ ,  $SD = 102$ ), displaying lower motivation scores in both the personal choice ( $M = 235$ ,  $SD = 87$ ) and experimenter choice ( $M = 109$ ,  $SD = 88$ ) conditions. As before, Anglo American children were more motivated by having a choice than were Asian American children, and both groups exhibited a significant decline in intrinsic motivation in the experimenter choice condition.

### Discussion

The results of Study 1 replicated earlier findings on the benefits of choice among both Anglo American and Asian American children, in that the performance and intrinsic motivation of both groups of children were significantly higher in the personal choice condition than in the traditional experimenter choice condition. Compared with the Anglo American children, however, the Asian American children displayed less intrinsic motivation in the personal choice context, suggesting that the exercise of choice per se

may be relatively less crucial or valuable for these children. More important, however, the results also indicated that the Asian American children actually performed best and appeared to enjoy the task most in the mom choice condition, suggesting that Asian Americans may sometimes prefer to have choices made for them by significant and trusted others. This was not true, of course, for the Anglo American children, for whom performance and intrinsic motivation were lower whenever their choices were "usurped," as found in previous Western research (e.g., Deci & Ryan, 1985; Nuttin, 1973; Zuckerman et al., 1978).

These findings would seem compelling. Certainly, they appear to challenge a fundamental assumption of traditional American social psychological research that a lack of individual choice or personal control and autonomy will necessarily be linked to negative consequences, such as decreases in intrinsic motivation. Moreover, they help to delineate some of the conditions under which opposite findings may occur.

For the Asian American children, there was a striking difference in intrinsic motivation and performance in the two imposed-choice conditions. Because both experimenters and moms were authority figures, one might have expected the Asian American children to be motivated by the experimenter's choice, as they were by their



mother's choice. Yet, the Asian American children seem to have made a crucial distinction between the two. It appears that the identity of the chooser—or perhaps the relationship between the person and the chooser—can be critical in determining whether the intrinsic motivation and performance of Asian American interdependent selves is enhanced or hampered.

Cultural psychologists have long noted the particular importance of the distinction between in-groups and out-groups in collectivist societies, as compared with individualist societies. However, this variable has received little experimental attention in the cultural literature (Markus & Kitayama, 1991a, 1991b; Triandis, 1988, 1989, 1990; Triandis, Bontempo, Villareal, Asai, & Lucca, 1988; Triandis, Marin, Lisansky, & Betancourt, 1984).<sup>1</sup> It appears, though, that the in-group/out-group distinction may very well underlie the cultural differences observed in this study. The experimenters were strangers, and the participants may have perceived the experimenters as outsiders, whereas the mothers of the participants may have been perceived as the ultimate insiders. Thus, choices made by their moms might have warranted special respect for the Asian American children. Assuming this to be the case, one central question is whether the differences observed between the experimenter choice and mom choice conditions would generalize to contexts involving other, very different in-group versus out-group members.

## Study 2

Study 2 endeavored to test whether these cultural differences would hold true when the identities of the in-group and out-group members were varied. Specifically, our hypothesis was that although it may make little difference to an independent self whether it is a friend or a total stranger who has eliminated one's options (Brehm, 1966; Wicklund, 1974), this difference may be absolutely critical to an interdependent self. Given that the identity of an interdependent self may be fused with those of in-group members, a choice conforming to the choice of such an in-group member should be significantly more intrinsically motivating. For interdependent selves, a choice made by an out-group member may be just as unrewarding as both imposed-choice contexts are for American independent selves.

In addition, Study 2 also used more extensive measures of intrinsic motivation. Although all of the children in Study 1 were explicitly told to do whatever they wanted during the free-play period, it is possible that this standard behavioral measure of intrinsic motivation was not necessarily reflective of intrinsic interest in the activity in this particular case. For example, children in the mom choice condition may have engaged in the anagram task with the hope that their activities even during the putative free-choice period might somehow be later reported to their mothers. To allay these concerns, it would be important both to eliminate any perception that information about the child's performance would be conveyed to others and to add to the design more direct self-report measures of interest and enjoyment that would more clearly establish levels of intrinsic motivation (Ryan, Koestner, & Deci, 1991). Finally, Study 2 also sought to extend the generality of the findings from Study 1 by examining the role of choice in a quite different educational setting.

In particular, the specific design of Study 2 involved an adaptation of a paradigm previously used by Cordova (1993) and

Cordova and Lepper (1996). In this earlier study, fifth-grade American students were exposed to different versions of a computer math game designed to increase their knowledge of the proper order of operations in simple arithmetic problems. In this computer game, half the participants had the opportunity to make several instructionally irrelevant choices (e.g., which specific icon would represent them on the game board, or by what name would they like to be addressed while playing the game). The results indicated that task performance, intrinsic motivation, and actual learning all rose dramatically when students were given even these minimal and instructionally irrelevant choices.

In Study 2, this same computer game, called *Space Quest*, was used. The game was reprogrammed, however, to provide three conditions: a personal choice condition, an out-group choice condition, and an in-group choice condition. As in Cordova and Lepper's (1996) study, the manipulated choices were designed to be instructionally irrelevant, to ensure that any potential differences in learning would not be a function of differences in the cognitive demands of the task. Finally, as in Study 1, the responses of both Asian American and Anglo American children to these three conditions were examined using a yoked design in which the children were matched across conditions within ethnicity.

Several dependent variables were examined. Measures of intrinsic motivation included indexes of students' task engagement, their preferences for challenge, and their reports of liking for the experimental activity. Measures of performance included not only assessments of the actual success of each student at the computer game itself, but also measures of generalized learning, obtained by taking the differences between the students' performances on written-mathematics pretests and posttests administered outside of the computer context.

## Method

### Participants

Fifth-grade students were drawn from two schools located in the San Francisco Bay area. The ethnic distribution of both schools was approximately 52% Anglo American, 40% Asian American, and 8% other ethnic groups. Additionally, these schools were selected because they had computer rooms and offered computer classes as part of their regular curriculum.

Our sample, drawn from six classes, included 47 Asian American students and 41 Anglo American students. As before, all Asian American

<sup>1</sup> Until recently, American social psychologists studying interpersonal processes have excluded from their studies participants in continuing relationships. (Predictably, the main recent exception involves research on romantic relationships, although even there the focus is often on initial attraction, rather than the evolving or ongoing features of the relationship itself.) Even when intergroup or intragroup dynamics are the focus of investigation, it is generally previously unacquainted individuals and/or arbitrarily defined groups that are studied, and when group dynamics of continuing relationships are not the focus of attention, investigators typically study the responses to actions by, communications from, or even written information about strangers rather than friends, family, coworkers, or others in long-term relationships. In a sense, relational and social contexts are treated as sources of noise, or even bias, to be eliminated in the search for "basic" underlying processes and functional relationships between variables.

participants spoke their parents' native language at home. These languages were Japanese, Chinese, and Vietnamese. The participants ranged in age from 9 to 11 years. The personal choice condition included 30 participants (13 girls and 17 boys), the out-group choice condition included 28 participants (16 girls and 12 boys), and the in-group choice condition included 30 participants (18 girls and 12 boys). Parental consent was obtained for all children prior to participation, and all four sessions of this experiment were conducted on school grounds during class time.

### *Selection of In-Group and Out-Group Members*

Prior cultural research has suggested that the concepts of in-group and out-group are fluid—that the definitions of in-groups and out-groups, as well as the boundaries between the two, can vary across both cultures and contexts (e.g., Triandis, 1989, 1990, 1995). Consequently, teachers' reported impressions of their students' group identifications served as the rationale for our in-group versus out-group manipulations.

Interviews with six teachers suggested that the in-group condition be operationalized as a vote of their classmates. Teachers reported the regular usage of both class-wide and grade-wide voting procedures in making a variety of decisions regarding student activities. Additionally, teachers provided explicit ratings on a 7-point scale ranging from 1 (*not at all characteristic of their students*) to 7 (*very characteristic of their students*) of the extent to which the students got along with one another, formed interethnic friendships, demonstrated support for their classmates in competitive sports and other school activities, and identified with their class as a group, for both the Anglo American and the Asian American students. The average of these teacher ratings was high, and there were no differences between ethnic groups (for Anglo American students,  $M = 5.75$ ,  $SD = 1.0$ , and for Asian American students,  $M = 5.50$ ,  $SD = 1.0$ ), suggesting the legitimacy of a class vote as an operationalization of the in-group choice condition for all participants.

In choosing an out-group manipulation, we consulted both the teachers and a number of students. During pretesting, we compared students' responses with two potential out-groups: fifth graders at another school (equal status) and third graders at another school (lower status). Pretesting revealed that third graders at another school were consistently perceived as an out-group, but that other fifth graders, even from another school, were not. In personal interviews, the six teachers also reported periodic interclass and interschool activities, which they felt made it difficult to identify an equal-status out-group for these children. On the basis of these considerations, the out-group choice condition was operationalized as a vote of students from a lower grade.

### *Mathematics Pretest*

During the first session (Session 1), students completed a 15-item written pretest designed to gauge their knowledge concerning the order of precedence and the use of parentheses in arithmetical expressions. Attached to this math test was a short questionnaire in which the students' preferences regarding what they would like to be called, what they would like their ship to be named, and the like were recorded. This choices questionnaire was included in the pretest packet to support our cover story (in the in-group choice condition) that a class vote had been taken.

### *Space Quest Instructional Program*

**Basic activity.** During the second and third sessions (Sessions 2 and 3), students worked with the Space Quest computer game, which is engineered to teach children about basic arithmetical equations, particularly the hierarchy of order of operations in such expressions. This instructional program was initially patterned after a commercially available program, *How the West Was One + Three × Four* (Seiler, 1989), from Sunburst Com-

munications and had been previously used by Cordova and Lepper (1996). It was further adapted for use in this study.

When the program was first turned on, a graphics page containing the title of the program and various relevant icons appeared on the screen. Participants were told that they were to serve as the captain of a ship, bound on a mission to save the Earth from an energy crisis by traveling to the distant Planet Ektar in search of a powerful source of energy. Additionally, they were informed that an alien ship, also on its way to Planet Ektar, was after the same limited source of power. The basic game board consisted of an "intergalactic trail" (i.e., a number line extending from 1 to 50) originating on Earth and ending at Planet Ektar. Both the player and his or her opponent, the computer, started at 1 and took turns moving along the number line. The first to reach 50 was the winner.

During a turn, the computer randomly generated three numbers between 1 and 5. The player then combined these three numbers in an arithmetic equation—using addition, subtraction, multiplication, and division, as well as parentheses—with the constraints that all three numbers had to be used and that no operator or number could be used more than once. The resulting value of the expression was the number of spaces the player got to advance on the number line. If the child produced an incorrect equation, the computer automatically provided instructional feedback, but the child did not advance on that turn.

To make the participant's task more challenging, several types of special moves were available, as detailed in Cordova and Lepper (1996). The children were also provided with two types of hints, which they could access at any point during the course of a game. The *Possible?* button allowed students to ask the computer whether it was possible to obtain some specified result using the three particular numbers provided for that turn. It was then up to the child to figure out what particular arithmetic expression would yield that result. The *Form?* option provided a stronger form of help, showing the abstract form of the expression that it considered to be the best possible move, given the numbers available for that particular turn.

**Experimental variations.** Further adaptations to this program were made to produce the three versions of the program required for this study: the personal choice version, the out-group choice version, and the in-group choice version. Before starting their first game, students encountered the choice screens that constituted our manipulation.

Students in the personal choice condition were offered several instructionally irrelevant choices, such as which of four icons would they like to have represent them on the game board and which of four names would they like to give their chosen spaceship. Similarly, they were allowed to choose both the icon that would represent their opponent on the game board and the name of the opponent's ship.

Students in the out-group choice condition were shown the same options on the computer screen. However, one of the options was highlighted, and the following message was printed across the screen: "These are the spaceships available for you. We're giving you the one shown below because that was what most of the third graders at the last school wanted."

Students in the in-group choice condition were shown the same options with one option highlighted. However, here the following message was printed across the screen: "These are the spaceships available for you. We're giving you the one shown below because that was what most of the students in your class wanted." Because the participants had provided their own preferences on these items during the first session, they found it plausible that the highlighted choice represented the class vote.

If students in either the out-group choice or the in-group choice condition tried to change their choices, the message "You cannot change this selection" was printed across the screen and the computer beeped.

Subsequently, at the beginning of each game, an introductory screen appeared, reminding students of the choices they had made or the choices that had been made for them either by their own class or by the third graders at another school. In the personal choice condition, this reminder screen stated, "Welcome back. These are the choices you made." The



corresponding screen in the out-group choice condition said, "Welcome back. These are the choices made for you by the third graders at the last school." In the in-group choice condition, this reminder screen stated, "Welcome back. These are the choices made for you by your classmates." In actuality, however, the program automatically yoked the three conditions such that students in the out-group choice and in-group choice conditions were automatically given the selections the prior personal-choice condition participant had selected.

A final addition to the program was a feature designed to measure the student's desire for challenge. Before starting each game, students in all conditions were given the opportunity to decide whether they wanted their opponent to play "not too hard," "pretty well but not great," or "the best it can." Their preferences were recorded for each game they played. To control the difficulty level presented to the students in the different groups, we had all students play the game at a moderate level of difficulty, regardless of their stated difficulty preferences.

### Posttest

One week later, during a fourth session (Session 4), students were again given a 20-item written test on their knowledge of the order of operations in arithmetical expressions. Because it was presumed that most students would show some learning, this posttest included both problems that paralleled the most difficult problems on the pretest and some problems that were more difficult than any included on the pretest, following Cordova and Lepper's (1996) method. Performance on the posttest minus performance on the pretest constituted the measure of direct learning.

Also, attached to the mathematics posttest were three self-report items designed to directly tap students' intrinsic motivation. The first item was "How much would you like to play the Space Quest math game again?" The second, more general, item asked, "How much do you like math?" The third assessed students' liking for their assigned condition. This last question was individualized, depending on the condition to which the student had been assigned. Thus, personal choice participants were asked "How much did you like being able to choose your ship and what the crew called you?" Participants in the two no-choice conditions were asked "How much did you like having your class [the third graders] decide what to call your space ship and what the crew would call you?" All items were answered on 5-point Likert scales ranging from 1 (*don't like it at all*) to 5 (*really loved it*).

### Procedure

In Session 1, the mathematics pretest and the preliminary questionnaire were administered in the classroom. This first session lasted approximately 20 min. Session 2, which occurred 2 days later, took place in the school computer room. In this room were three computers, spread apart from one another, which enabled us to run three students at a time while still ensuring that the students did not interact with one another. A help list reminding students of the Possible? and Form? options was taped to each computer. Each student was attended by his or her own experimenter, ensuring individualized attention. Initially, the experimenter reviewed with the student the basics of using a Macintosh computer; then, during this same session, students were introduced to the program and given a chance to play one game.

Before starting the tutorial, each experimenter emphasized that the game was not a test. "Today we're going to play a math game called Space Quest. This game is not a test. You will not be graded on this at all. I just want you to play the game and learn what you can." During the tutorial session, the experimenter emphasized the rules regarding the operations and explained the importance of the Form? and Possible? keys. Aside from the assistance given during the tutorial, no student received any extra math help while playing the games. If at any point students requested assistance, they were referred to their help sheets.

Before starting their first game, students were exposed to the choice screen, and it is at this point that the experimenter's script varied by condition. In the personal choice condition, the experimenter said,

You get to choose what your spaceship looks like, what the crew calls you, and some other things. Pick whatever you like and then move on to the next screen. Feel free to pick whatever you like, and then go ahead and start playing the game.

In the out-group choice condition, the experimenter said,

Some third graders at another school have already preselected what your spaceship will look like, what your crew calls you, and some other things. You can't change these selections, so just read what they picked for you and then go ahead and start playing the game.

In the in-group choice condition, the experimenter said,

Your own classmates have already preselected what your spaceship will look like, what your crew calls you, and some other things. You can't change these selections, so just read what they picked for you and then go ahead and start playing the game.

In Session 3, which occurred the next day, students returned to their same computer. The experimenter quickly reviewed the game and the help sheet attached to the computer with the student. During this session, students had 20 min to play as many games as they liked, but before starting the scored session, both the computer program and the experimenter again reminded them of their prior choices or the choices that had been made for them.

Finally, in Session 4, the mathematics posttest and the self-report measures of intrinsic motivation were administered. This final session took place 1 week after Session 3 and lasted approximately 20 min.

## Results

### Preliminary Analysis

Once again, our central interest in Study 2 lay in the comparison of Anglo American and Asian American children's responses across the three experimental treatments, in terms of both intrinsic motivation and their subsequent learning. Before turning to these central issues, however, we first examined the effects of age, gender, and school on these two measures. No significant differences were observed on any of the dependent variables as a function of these factors, nor were there any significant interactions between these three factors and experimental conditions. Similarly, preliminary analyses revealed, once again, that there were no differences between the different Asian American populations; these groups were therefore treated as one.

### Intrinsic Motivation

*Liking for the activity.* A first analysis examined students' responses to the question "How much would you like to play the Space Quest math game again?" An Ethnicity  $\times$  Condition ANOVA on responses to this question yielded significant effects for ethnicity,  $F(1, 81) = 9.99, p < .002$ , condition,  $F(2, 81) = 57.38, p < .0001$ , and their interaction,  $F(2, 81) = 35.63, p < .0001$ .

Tukey comparisons showed that Anglo American students expressed significantly more liking for the activity in the personal-choice condition ( $M = 4.79, SD = 0.43$ ) than in either the out-group choice ( $M = 2.19, SD = 0.83$ ) or in-group choice

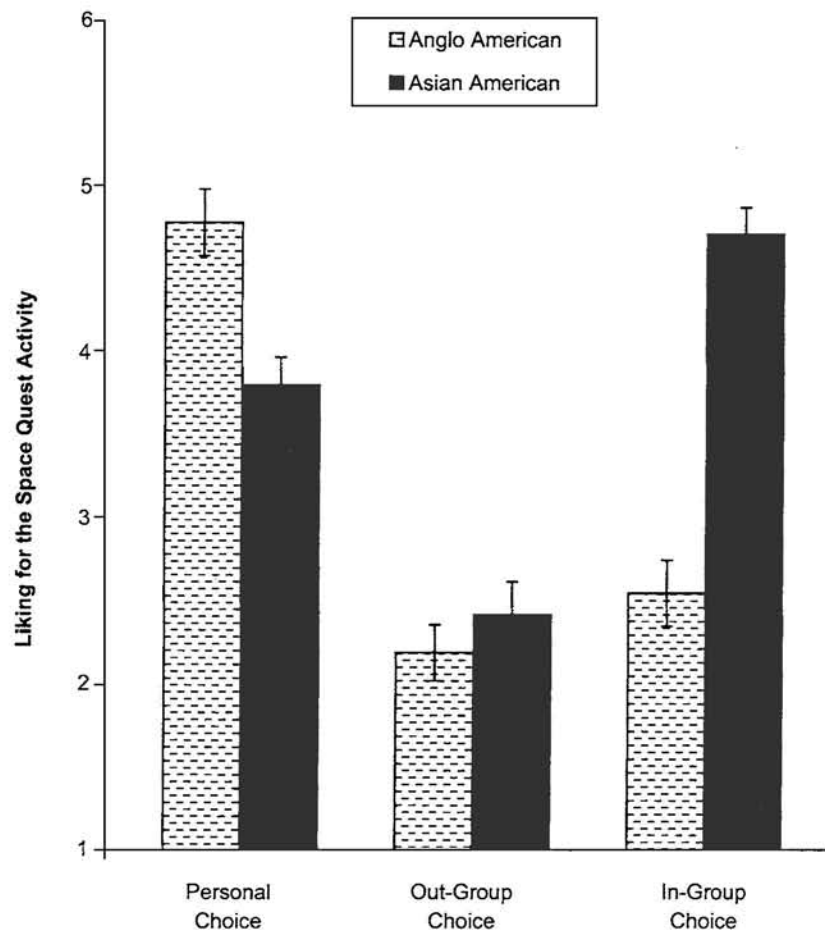


Figure 3. Measure of intrinsic motivation in Study 2. Mean liking for the activity by experimental condition, measured on a 5-point Likert scale ranging from 1 (*don't like it at all*) to 5 (*really loved it*). Bars represent means, and lines represent standard errors.

( $M = 2.55$ ,  $SD = 0.82$ ) conditions, which did not differ from each other. In contrast, Asian American students expressed the most liking for the activity in the in-group choice condition ( $M = 4.72$ ,  $SD = 0.46$ ), next most in the personal choice condition ( $M = 3.81$ ,  $SD = 0.98$ ), and least in the out-group choice condition ( $M = 2.42$ ,  $SD = 0.51$ ). In addition, within the in-group choice condition Anglo American students reported significantly less liking for the task than did Asian American students. In contrast, within the personal choice condition Anglo American students reported more liking for the task than did Asian American students. These results are presented in Figure 3.

**Task engagement.** Are these differences in reported liking for the computer game accompanied by parallel differences in the total number of games students chose to attempt? An Ethnicity  $\times$  Condition ANOVA on the total number of games attempted during the 20-min period revealed no significant main effect of ethnicity,  $F(1, 82) = 2.64$ ,  $ns$ , but significant effects of condition,  $F(2, 82) = 49.68$ ,  $p < .0001$ , and the interaction of ethnicity and condition,  $F(2, 82) = 54.28$ ,  $p < .0001$ , were obtained. Tukey comparisons again indicated that Anglo Americans played significantly more games in the personal choice condition ( $M = 4.71$ ,  $SD = 0.59$ ) than in either the out-group choice ( $M = 2.94$ ,  $SD = 0.25$ ) or

in-group choice ( $M = 2.91$ ,  $SD = 0.54$ ) conditions. In contrast, Asian American students played the most games in the in-group choice condition ( $M = 4.89$ ,  $SD = 0.83$ ), next most in the personal choice condition ( $M = 3.69$ ,  $SD = 0.49$ ) and the least in the out-group choice condition ( $M = 2.58$ ,  $SD = 0.51$ ). Within the in-group choice condition, Anglo American students played fewer games than did Asian American students, whereas within the personal choice condition, Anglo American students played more games than did the Asian American students. These results appear in Figure 4.

**Preference for challenge.** Another behavioral indicator of intrinsic motivation was the students' expressed desire for more challenging games. To calculate a challenge score, we assigned each game attempted a weight ranging from 1 to 3, depending on whether the easy, moderately difficult, or difficult option was selected; from this, a measure of the average difficulty level chosen by each student was computed. An Ethnicity  $\times$  Condition ANOVA on this challenge measure indicated that participants with high scores on other measures of intrinsic motivation also tended to select more challenging games, yielding significant effects for ethnicity,  $F(1, 80) = 12.39$ ,  $p < .001$ , condition,  $F(2, 80) = 7.05$ ,  $p < .002$ , and their interaction,  $F(2, 80) = 19.50$ ,  $p < .0001$ .

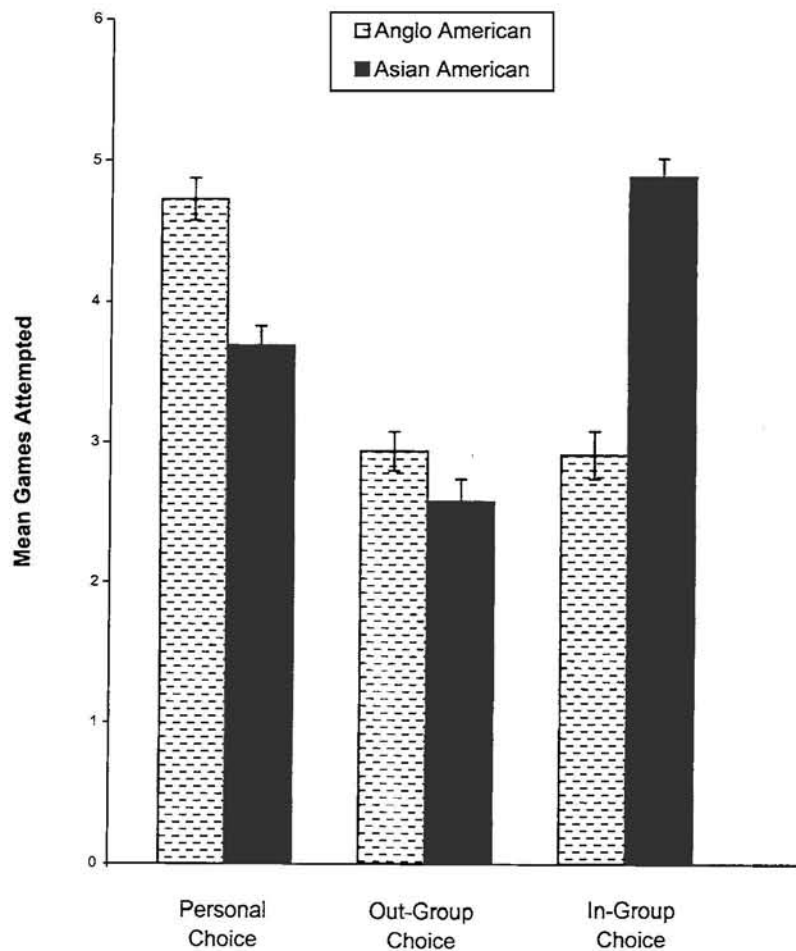


Figure 4. Measure of games attempted in Study 2. Mean number of games attempted during the 20-min Session 3 by experimental condition. Bars represent means, and lines represent standard errors.

Tukey comparisons revealed that Anglo American students showed a marginal preference for more challenge in the personal choice condition ( $M = 1.73$ ,  $SD = 0.48$ ) as compared with the out-group choice ( $M = 1.25$ ,  $SD = 0.45$ ) and in-group choice ( $M = 1.10$ ,  $SD = 0.23$ ) conditions. Asian American students preferred significantly more challenge in the in-group choice condition ( $M = 2.24$ ,  $SD = 0.36$ ) than in the personal choice ( $M = 1.52$ ,  $SD = 0.47$ ) or out-group choice ( $M = 1.31$ ,  $SD = 0.46$ ) conditions. The two ethnic groups differed only within the in-group choice condition, in which Anglo American students displayed a lower preference for challenge than did the Asian American students. These results are shown in Figure 5.

**Liking for mathematics.** Finally, one might ask whether these differences would generalize to students' broader attitudes toward mathematics, as assessed by the question "How much do you like math?" An Ethnicity  $\times$  Condition ANOVA on responses to this item revealed a now-familiar pattern of data. Although, as above, there was no main effect for ethnicity,  $F(1, 81) = 1.62$ ,  $ns$ , there were significant effects for both condition,  $F(2, 81) = 12.15$ ,  $p < .0001$ , and the interaction of ethnicity and condition,  $F(2, 81) = 14.96$ ,  $p < .0001$ .

Once again, Tukey comparisons indicated that Anglo American students displayed increased liking for math in the personal choice condition ( $M = 3.93$ ,  $SD = 0.99$ ), as compared with both the out-group choice ( $M = 2.63$ ,  $SD = 0.96$ ) and the in-group choice ( $M = 2.36$ ,  $SD = 0.81$ ) conditions. In contrast, Asian American students reported the most liking for math in the in-group choice condition ( $M = 4.00$ ,  $SD = 0.62$ ), next most in the personal choice condition ( $M = 3.25$ ,  $SD = 0.77$ ), and least in the out-group choice condition ( $M = 2.25$ ,  $SD = 0.62$ ). However, significant ethnic differences were observed only within the in-group choice conditions, in which Anglo American students reported less liking for mathematics than did Asian American students. These results are displayed in Figure 6.

### Learning and Performance

**Subsequent learning.** Do these differences in intrinsic motivation, then, affect the amount that students learned from their work with the instructional computer game? A measure of learning was derived by subtracting the percentage correct on the written math pretest from the percentage correct on the written math posttest.

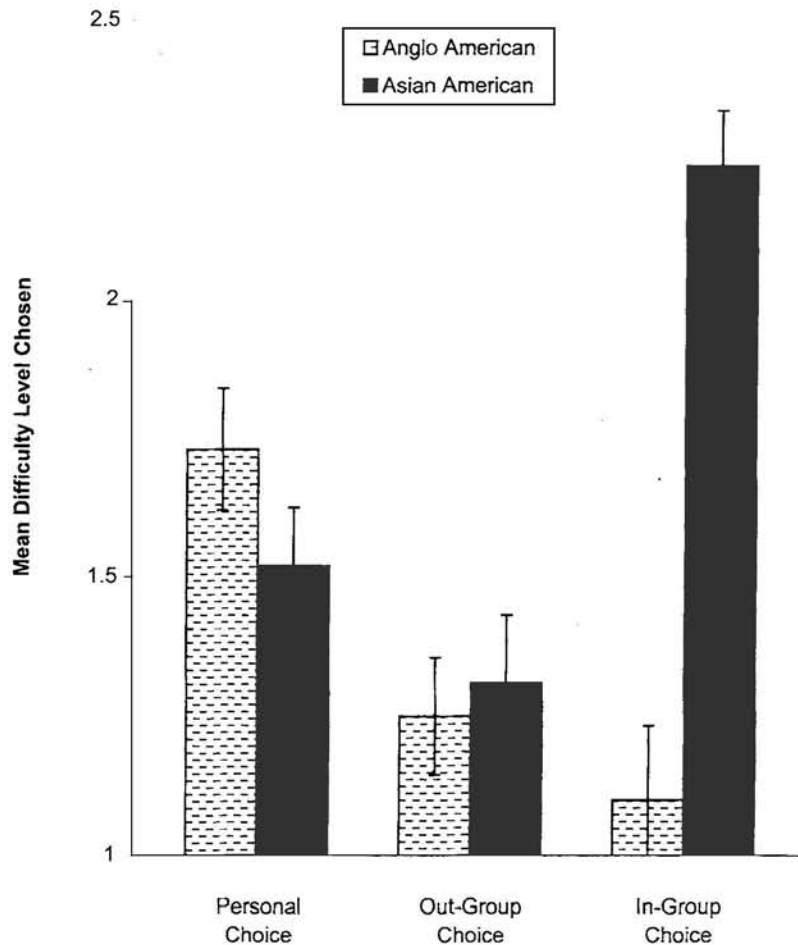


Figure 5. Measure of preferred level of challenge in Study 2. Mean level of challenge preferred by experimental condition, measured on a 3-point scale, with 1 = *easy*, 2 = *moderate*, and 3 = *difficult*. Bars represent means, and lines represent standard errors.

An Ethnicity  $\times$  Condition ANOVA on this learning measure yielded a highly similar pattern of effects, with a marginal effect of ethnicity,  $F(1, 78) = 2.75$ ,  $p = .10$ , but significant effects for condition,  $F(2, 78) = 21.09$ ,  $p < .0001$ , and the interaction of the two variables,  $F(2, 78) = 12.82$ ,  $p < .0001$ .

Anglo American students showed more learning in the personal choice condition ( $M = 18\%$ ,  $SD = 11$ ) than in either the out-group choice ( $M = -2\%$ ,  $SD = 9$ ) or in-group choice ( $M = 0$ ,  $SD = 5$ ) conditions. In contrast, Asian American students learned most in the in-group choice condition ( $M = 18\%$ ,  $SD = 12$ ), next most in the personal choice condition ( $M = 11\%$ ,  $SD = 9$ ), and by far the least in the out-group choice condition ( $M = -2\%$ ,  $SD = 9$ ). Moreover, the difference in learning between the Anglo American students and the Asian American students within the in-group choice condition was substantial. However, the apparent difference in learning between Asian American students and Anglo American students within the personal choice condition was not significant for this measure. These results are presented graphically in Figure 7.

*Immediate task performance.* Similar, although somewhat weaker, effects emerged in analyses of students' immediate per-

formance while playing the computer math game. Performance was measured as the average percentage of correct responses across all of the games played by each participant. An Ethnicity  $\times$  Condition ANOVA on this percentage-correct measure produced, as in prior analyses, no significant main effect of ethnicity,  $F(1, 82) = 0.85$ , *ns*, but significant effects for condition,  $F(2, 82) = 7.20$ ,  $p < .001$ , and the interaction of the two variables,  $F(2, 82) = 6.73$ ,  $p < .002$ .

For Anglo American students, Tukey comparisons showed a significant difference in performance between the personal choice ( $M = 77\%$ ,  $SD = 9$ ) and out-group choice ( $M = 65\%$ ,  $SD = 11$ ) conditions, whereas performance for the in-group choice participants ( $M = 67\%$ ,  $SD = 6$ ) fell between the other two groups, not differing significantly from either group. For Asian American students, in contrast, Tukey comparisons suggested that the real performance difference was between the in-group choice ( $M = 77\%$ ,  $SD = 14$ ) and out-group choice ( $M = 60\%$ ,  $SD = 14$ ) conditions. That is, these participants scored significantly higher in the in-group choice condition than in the out-group choice condition. Asian American participants in the personal choice condition ( $M = 67\%$ ,  $SD = 15$ ) did not differ significantly from either the

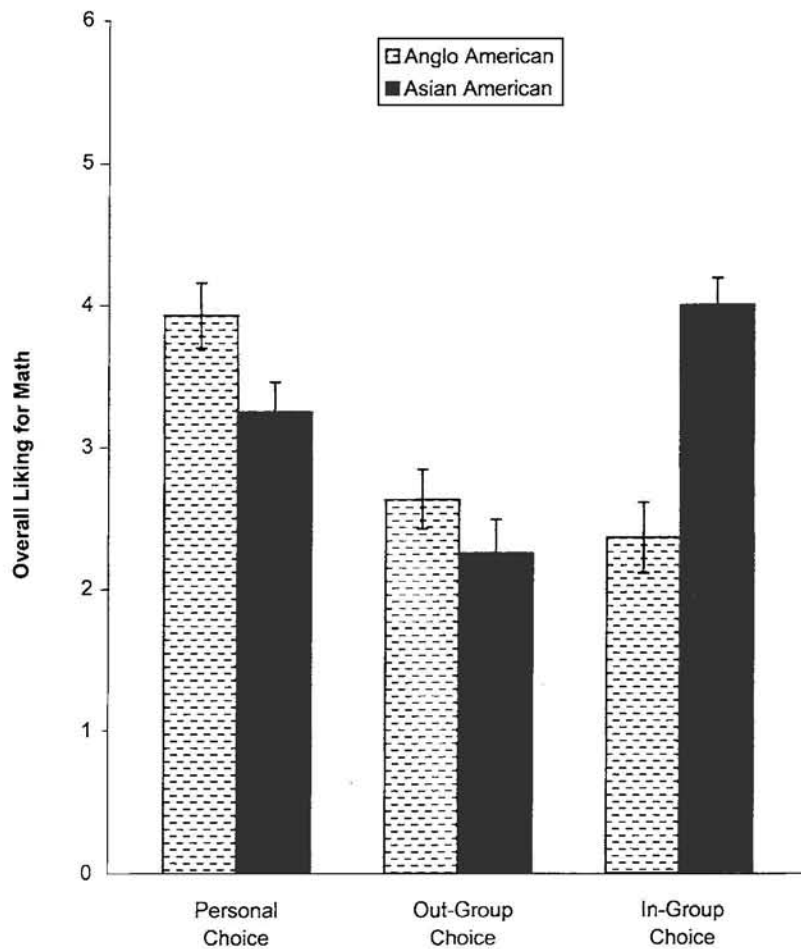


Figure 6. Measure of generalized interest in mathematics in Study 2. Mean overall liking for math by experimental condition, measured on a 5-point Likert scale ranging from 1 (*don't like it at all*) to 5 (*really loved it*). Bars represent means, and lines represent standard errors.

out-group choice or the in-group choice conditions. These data appear in Figure 8.

Of course, it is possible that children who demonstrated greater preferences for challenge were more interested in the activity and perhaps expended more effort on the activity, and as a consequence performed better on the computer math games. However, an analysis of covariance on the average percentage of correct responses across all of the games played, using preference for challenge as a covariate, suggests that even after this covariate is taken into consideration, significant effects for both condition,  $F(1, 79) = 5.04, p < .009$ , and the interaction of ethnicity with condition,  $F(1, 79) = 4.27, p < .02$ , remain. Tukey comparisons again indicated that Anglo American students performed significantly better in the personal choice condition ( $M = 77\%$ ,  $SD = 11$ ), compared with either the in-group choice condition ( $M = 68\%$ ,  $SD = 12$ ) or the out-group choice condition ( $M = 65\%$ ,  $SD = 12$ ). Conversely, Asian American students performed significantly better in the in-group choice condition ( $M = 76\%$ ,  $SD = 14$ ), compared with either the personal choice condition ( $M = 67\%$ ,  $SD = 11$ ) or the out-group choice condition ( $M = 60\%$ ,  $SD = 11$ ).

#### Additional Analyses

*The in-group/out-group variable.* Are these observed cultural differences in learning and intrinsic motivation explained by cultural differences in the extent to which the Anglo American and Asian American participants value personal choice, in-group choice, and out-group choice? To test this hypothesis, we undertook a comparable analysis of participants' responses to the personalized liking-for-condition item that asked students to rate the extent to which they liked being able to choose or liked having their choices made for them. This analysis produced significant effects for ethnicity,  $F(1, 81) = 12.24, p < .001$ , condition,  $F(2, 81) = 135.25, p < .0001$ , and the interaction of ethnicity and condition,  $F(2, 81) = 110.95, p < .0001$ . Anglo American students overwhelmingly reported great liking for the opportunity to choose their own selections ( $M = 4.79$ ,  $SD = 0.43$ ). In contrast, Anglo American students reported very little liking for having their choices determined by a group, regardless of whether the selections had been made by a poll of younger children at a rival school ( $M = 1.38$ ,  $SD = 0.62$ ) or by a poll of their own classmates ( $M = 1.36$ ,  $SD = 0.67$ ). In contrast, Asian American students

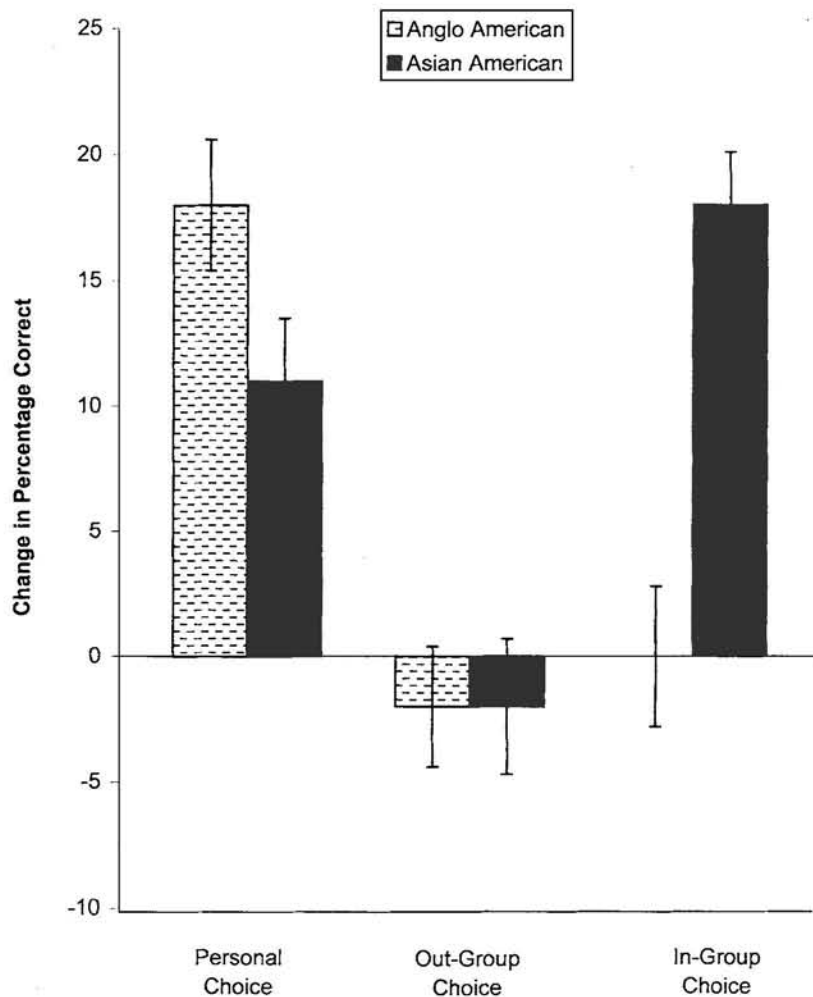


Figure 7. Measure of direct learning in Study 2. Mean pretest to posttest change in percentage correct by experimental condition. Bars represent means, and lines represent standard errors. In the Anglo American in-group choice condition, the mean for pretest to posttest change in percentage was 0. Thus, there is no visible bar.

reported liking the selections agreed on by the majority of their classmates the most ( $M = 4.56$ ,  $SD = 0.51$ ), being able to choose their own selections next most ( $M = 3.19$ ,  $SD = 0.91$ ), and having selections made for them by the third graders at another school the least ( $M = 1.17$ ,  $SD = 0.39$ ).<sup>2</sup>

*The effects of individual preferences.* Finally, one might hypothesize that the extent to which the participants' actual personal preferences were reflected in the in-group and out-group selections would influence both their intrinsic motivation and their learning from the activity. As described in the *Methods* section, participants' preferences regarding what they would like to be called, what they would like their ship to be named, and so on were obtained during the pretest phase. Consequently, for participants in the out-group choice and in-group choice conditions, we calculated the percentage of their original personal preferences that were subsequently reflected in the choices they received. We then included this percentage as a covariate in all of the aforementioned analyses on intrinsic motivation, learning, and performance. This covariate proved to be an insignificant predictor of all of our

dependent variables, suggesting the potential irrelevance of such a mediating variable in the way out-group versus in-group choice conditions influenced intrinsic motivation, learning, and performance in Study 2.

### General Discussion

Although prior research would have us believe that the provision of personal choice, or even just a perception of choice, should regularly enhance intrinsic motivation, the current findings challenge these expectations. They demonstrate, for the first time, that contexts offering individual choice may not always produce the highest levels of intrinsic motivation. Indeed, the present findings

<sup>2</sup> For each of the foregoing analyses in Study 2, we should note that removing the out-group choice condition from the analyses did not change any of the aforementioned cultural differences in intrinsic motivation and learning.



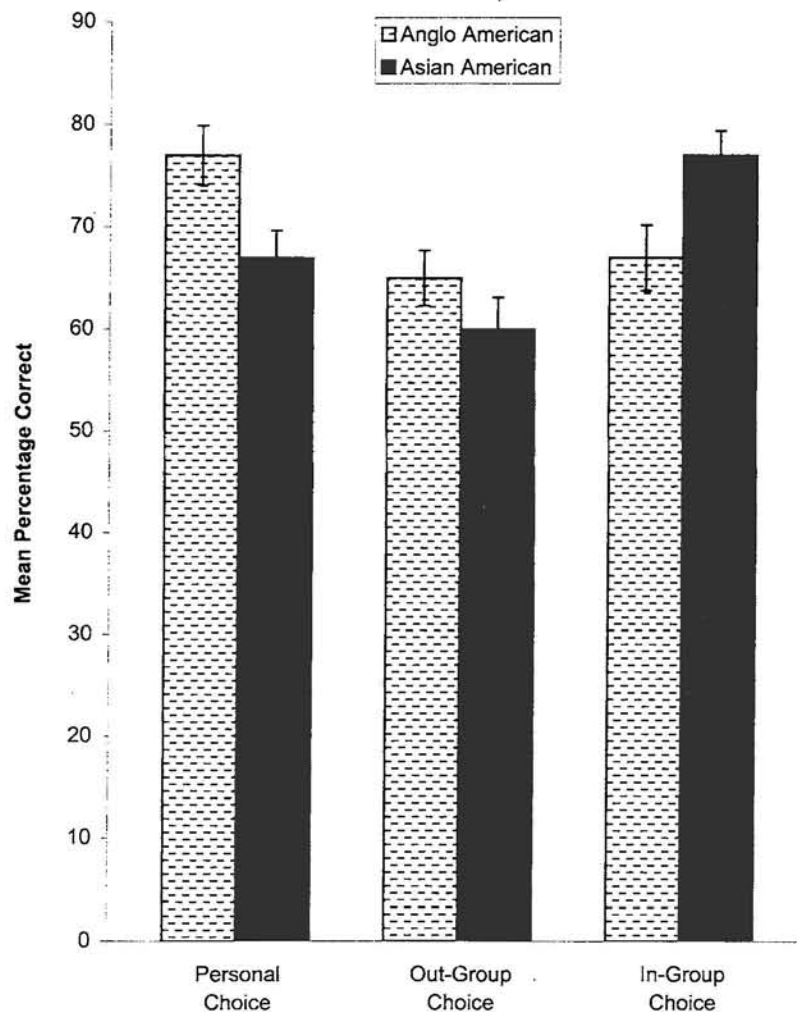


Figure 8. Measure of immediate performance on the computer math game in Study 2. Mean percentage correct across all games attempted by experimental condition. Bars represent means, and lines represent standard errors.

show that in particular contexts, individuals from some cultures may actually prefer to have choices made for them by significant others.

In both studies, the intrinsic motivation and performance of Asian American children proved highest not in contexts offering personal choice, but in those in which choices were determined for them by valued in-group members. In contrast, Anglo American children displayed higher levels of intrinsic motivation and performance in contexts emphasizing personal choice, relative to contexts in which choices were made for them, regardless of the identity of the other choosing for them. This pattern of results was consistently observed on both self-report measures and behavioral measures of intrinsic motivation, as well as on measures of task performance and direct learning.

As theorized, the provision of individual choice seems to be more crucial to American independent selves, for whom the act of making a personal choice offers not only an opportunity to express and receive one's personal preference, but also a chance to establish one's unique self-identity. For Asian American interdependent selves, however, personal choice does not seem to be as critical.

For them, having choices made by relevant in-group members instead of making their own choices seems consistently more intrinsically motivating, presumably because it provides a greater opportunity to promote harmony and to fulfill the goal of belonging to the group. Indeed, actions that could be seen by rugged individualists as unwarranted usurpations of fundamental individual rights may be viewed by dedicated collectivists as the necessary fulfillment of expected social obligations to family and friends (Iyengar, Lepper, & Ross, *in press*).

It is worth noting, however, that both Anglo American independent selves and Asian American interdependent selves exhibited less intrinsic motivation in out-group choice contexts (i.e., experimenter choice in Study 1 and out-group choice in Study 2) than in personal-choice contexts. In this sense, the current results replicate the findings of prior American research for both populations, although these effects were sometimes significantly stronger for Anglo American students. Had our studies examined only the two traditional conditions included in previous research, of course, we would never have seen the important differences between these populations.

Significantly, parallel differences between cultural groups were found in both studies despite their very different operationalizations of in-group versus out-group membership based on the two primary group identifications in children's lives: family and peers. In Study 1, the in-group member was a high-status and trusted authority figure (mother), whereas in Study 2, the in-group was an equal-status and presumably liked peer group (classmates). Similarly, in Study 1, the out-group member was a high-status, previously unencountered authority figure (the experimenter), whereas in Study 2, the out-group was a lower status, possibly negatively regarded peer group (third graders from another school). In advance, one might have imagined Asian American children to be less influenced by in-group members who were their equals than by higher status in-group members. Similarly, one might have speculated that Anglo American children would be more influenced by their peers' choices than by their mothers' choices. However, the findings strongly suggest that Asian American children prefer to have in-group members making their choices, regardless of status, whereas Anglo American children regularly prefer making their own choices.

At the same time, although the current findings may suggest the lesser relative importance of the in-group/out-group distinction among Anglo Americans, one should not infer that this distinction is absent or insignificant among American independent selves (e.g., Tajfel, 1970, 1981, 1982; Tajfel & Billig, 1973, 1974). In fact, even rugged American individualists might, under some circumstances, prefer to have others make choices for them, at least in settings that highlight social identification. In the context of competitive sports, for example, even individualists may relinquish their personal agency to achieve group goals. Similarly, if—as Aron, Aron, and Smollan (1992) have suggested—many Western romantic relationships may involve a “merging” of independent selves, persons in such relationships may highly value choices made for them by their partners. In short, one might imagine circumstances in which the pattern of results observed with Asian American interdependent selves would be replicated with Anglo American independent selves.

It may also be worth asking whether our findings might have been altered if the comparison had been between two groups from entirely different cultural backgrounds and countries instead of two groups with substantial exposure to America's individualistic culture. Although conducting the experiments in two different countries would have invited numerous methodological confounds, we believe that the pattern of results observed in our studies would have been even stronger among local residents of Asian collectivist cultures. Extensive field observations within Japanese elementary schools, for example, suggest the experience of having and making choices is not a part of students' normal daily routines (Lewis, 1995). Quite the opposite appears to be the case. Engaging in daily rituals that encourage students to conform their preferences to those of their social in-groups may foster an expectation and preference for having their choices made for them. In Lewis's (1995) terms,

A system that uniformly regulates the details of students' belongings and personal hygiene may accustom students to conform their behavior to that of peers. It may teach them to look to precedent when they approach a new task rather than rely on personal judgment. (p. 143)

Beyond differences in the way contexts offering personal choice and out-group choice or in-group choice are socially valued, theories of the independent and interdependent self seem to predict that these constructs may be serving very different functions among individuals possessing independent—as compared with interdependent—self models.

What, then, do these findings—that unfettered personal choice may not universally produce the greatest psychological benefits, and that having others make choices for one may not always prove detrimental—mean? Is the very construct of choice conceptualized differently across cultures? Whereas the exercise of choice may reflect the American independent self's struggle for uniqueness, the act of choosing may represent opportunities for conformity for Asian interdependent selves (Kim & Markus, 1998).

Or are there cultural differences in the way personal choice and in-group choice are distinguished from one another? Recent research suggests that although Anglo Americans place a greater value on personal autonomy, Asian Americans, in contrast, may place greater value on group autonomy (Menon, Morris, Chiu, & Hong, 1998). Hence, although the difference between personal choice and in-group choice may represent the distinction between choice versus no choice for American individualists, the difference between these two conditions may reflect more of a distinction between personal agency versus group agency for Asian collectivists.

If availability of individual choice is indeed less relevant for people from more socially interdependent cultures, then social psychologists may be faced with the challenge of reconceptualizing a number of traditional theories and paradigms. Such cultural differences may prove important, for example, in many other classic social psychological theories in which choice, or perceptions of choice, have been shown to play a central role. Such well-known theories as cognitive dissonance (Festinger, 1957; Heine & Lehman, 1997), attribution theory (Morris & Peng, 1994), and psychological reactance (Brehm, 1966)—to name just a few—may not apply to nonindividualistic cultures without some modification (Iyengar et al., in press).

In our society, for instance, it is typically presumed that when one engages in some behavior merely to please or to conform to the ideals of others then that action is extrinsically motivated (deCharms, 1968; Deci, 1975; Harter, 1981). In deCharms's (1968) terms, “The crux of the distinction between extrinsic and intrinsic motivation lies in the knowledge or feeling of personal causation” (p. 328). Although this assumption is clearly consistent with the American self-system, the boundaries between intrinsic and extrinsic motivation may need to be reconsidered when taking into account the interdependent self for whom conformity to one's in-group is an integral aspect of the self-system.

Perhaps the greatest contribution of the present findings is the challenge they provide to some of our most fundamental assumptions regarding human motivation, and perhaps the most general lesson they teach is the recognition of the many ways in which our theories and paradigms are a reflection of the culture in which they were developed. For centuries in Western civilization, politicians, economists, psychologists, and laypeople alike have assumed that the desirability of individual choice was inherent to humankind. From Mill to Locke, from Rousseau to Jefferson, choice has been hailed as an inalienable human right—an essential human need.

America, in particular, has been described as *The Republic of Choice* (Friedman, 1990).

However, just as the idealized values of life, liberty, and the pursuit of happiness have shaped the motivation of Americans for centuries, contrasting cultural ideals might have shaped the motivational contexts of other societies quite differently. Might our theories of motivation require modification among a people whose fundamental values are instead fate, duty, and the pursuit of interdependence?

In the world, there are two great decrees: one is fate and the other is duty. That a son should love his parents is fate—you cannot erase this from his heart. That a subject should serve his ruler is duty—there is no place he can go and be without his ruler, no place he can escape to between heaven and earth. These are called the great decrees.

—Confucius, *The Analects: Book III*

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